UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/506,746	09/03/2004	Paul Robert Owen Whittamore	ASZD-P01-667	6662

28120 7590 12/29/2005

FISH & NEAVE IP GROUP
ROPES & GRAY LLP
ONE INTERNATIONAL PLACE
BOSTON, MA 02110-2624

EXAMINER	
CHUNG, SUSANNAH LEE	
ART UNIT	**PAPER NUMBER**
1626	

DATE MAILED: 12/29/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/506,746	WHITTAMORE ET AL.	
	Examiner	Art Unit	
	Susannah Chung	1626	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *01 April 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-16* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-11 and 13-15* is/are rejected.

7)☒ Claim(s) *12 and 16* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *03/24/2005*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claims 1-16 are pending in the instant application.

Information Disclosure Statement

The information disclosure statement (IDS), filed on 03/24/2005 has been considered (in part). Please refer to Applicant's copy of the 1449 submitted herewith.

Priority

This application is a 371 of PCT/GB03/00875, filed on 03/04/2003.

Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d) by application no. 0205170.4 filed in the United Kingdom Patent Office on 03/06/2002, which papers have been placed of record in the file. The application names an inventor or inventors named in the prior application.

Obviousness Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington,* 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

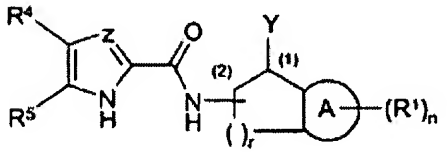
A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-11 and 13 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over Claims 1-5 and 7 of co-pending U.S. Patent Application 10/344,506 (`506 App.). This is a provisional double patenting rejection since the conflicting claims have not yet been patented as of the date of this action.

Determination of the scope and content of the co-pending application

Applicants instant elected invention teaches the compound of formula (I),



, depicted in claim 1, wherein **R4** and **R5** together are –S-C(R6)=C(R7)- or –C(R7)=C(R6)-S-; **z** is CH or nitrogen; **Y** is –NR2R3 or –OR3; **r** is 1 or 2; A is phenylene or heteroarylene, etc…

These products are used for the treatment of type 2 diabetes, insulin resistance, syndrome X, hyperinsulinaemia, hyperglucagonaemia, cardiac ischaemia, or obesity in a warm-blooded animal, comprising administering a compound of claim 1, or a pharmaceutically acceptable salt or in-vivo hydrolysable ester thereof. (See Claims 14 and 15, on page 132).

Ascertainment of the difference between the prior art and the claims (MPEP § 2141.02)

The difference between the `506 App. and the instant application is that the instant application is more specific than the `506 App. For instance, in the `506 App. the X-Y-Z ring is selected from –S-CR4=CR5-, -CR4=CR5-S-, -O-CR4=CR5, -CR4=CR5-O-, -N=CR4-S-, -S-CR4=N-, -NR6-CR4=CR5-, and –CR4=CR5-NR6-, while in the instant application it is only –S-CR6=CR7- or –CR7=CR6-S-.

Finding of prima facie obviousness – rationale and motivation (MPEP § 2142-2413)

One skilled in the art would have found the claimed compound prima facie obvious because the instantly claimed compound and the compound in `506 App. claim the same compounds, i.e. where in the instant formula, **z** is CH; **R4** and **R5** are –S-CR6=CR7- or –CR7=CR6-S-; **r** is 1 or 2; **Y** is –NR2R3 or –OR3; and **A** is phenylene or heteroarylene. In addition, in the specification, starting on page 69, of the `506 App. the following compounds are the same compounds found in the instant application: Examples 112, 133-136, 138, and 148-154.

The motivation to make the claimed compounds derives from the expectation that structurally similar compounds would possess similar activity (i.e. pharmacological use). Both the instantly claimed compounds and the compounds of the `506 App. co-pending application are used for the treatment of disease states associated with increased glycogen phosphorylase activity (see specification, page 1 of both `506 App. and instant application). Although, the instant application differs in that it is more specific, the claims of both applications overlap and one skilled in the art would have found this variation obvious when faced with the co-pending application because both compounds are used for the same pharmacological use so one skilled in the art would expect similar properties and results.

Claim Rejections - 35 USC § 112, 1st paragraph

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 14 and 15 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement because the specification **while being enabled for *treating* certain glycogen phosphorylase activity, such as certain types of type 2 diabetes** does not

enable one skilled in the art to which it pertains, or with which it is most nearly connected, to practice the invention commensurate in scope with these claims, for the reasons describe below.

As stated in MPEP 2164.01(a), "there are many factors to be considered when determining whether there is sufficient evidence to support a determination that a disclosure does not satisfy the enablement requirement and whether any necessary experimentation is "undue."

The factors to be considered when determining whether a disclosure meets the enablement requirement of 35 USC 112, first paragraph, were described in In re Wands, 8 USPQ2d 1400, 1404 (Fed. Cir. 1988) as:

1. the nature of the invention;
2. the breadth of the claims;
3. the state of the prior art;
4. the relative skill of those in the art;
5. the predictability or unpredictability of the art;
6. the amount of direction or guidance presented [by the inventor];
7. the presence or absence of working examples; and
8. the quantity of experimentation necessary [to make and/or use the invention].

The eight Wands factors are applied to Claims 14 and 15 of the present invention below:

(1) The Nature of the Invention

Claims 14 and 15 are used for the treatment of type 2 diabetes, insulin resistance, syndrome X, hyperinsulinaemia, hyperglucagonaemia, cardiac ischaemia, or obesity in a warm-blooded animal, comprising administering a compound of claim 1, or a pharmaceutically acceptable salt or in-vivo hydrolysable ester thereof. (See Claims 14 and 15, on page 132).

(2) The Breadth of the claims

Claims 14 and 15 will be give its broadest reasonable interpretation. The applicable rule for interpreting the claims is that "each claim must be separately analyzed and given its broadest reasonable interpretation in light of and consistent with the written description." See MPEP 2163(II)(1), citing In re Morris, 127 F.3d 1048, 1053-1054; 44 USPQ2d 1023, 1027 (Fed. Cir. 1997). In view of this rule, Claims 14 and 15, which do not specify the many possible types of type 2 diabetes, insulin resistance, syndrome X, hyperinsulinaemia, hyperglucagonaemia, cardiac ischaemia, or obesity will be interpreted to encompass all types of the above diseases.

(3) The state of the prior art

It was known in the art at the time of this application that certain compounds of formula (I) could be used in the treatment of certain types of type 2 diabetes. (see specification, page 1, starting line 16, Weyer et al, (1999), J Clin Invest 104; 787-794; Clore & Blackgard (1994), Diabetes 43: 256-262; DeFronzo, R.A. et al, (1992) Diabetes Care 15; 318-355; Reaven, G.M. (1995) Diabetologia 38:3-13).

(4) The relative skill of those in the art

The level of skill in the art (pharmaceutical chemists, physicians) would be high.

(5) The predictability or unpredictability of the art

It is noted that the pharmaceutical art generally is unpredictable, requiring each embodiment to be individually assessed for physiological activity. In cases involving unpredictable factors, such as most chemical reactions and physiological activity, the scope of enablement varies inversely with the degree of unpredictability in the factors involved. In re Fisher, 427 F.2d 833, 839. Therefore, the more unpredictable an area, the more specific enablement is needed in order to satisfy the statute. Added to the unpredictability of the art itself is the question whether in vitro activity by one of the compound of the present invention could be reliably and predictably extrapolated to in vivo

activity in patients with all types of type 2 diabetes, insulin resistance, syndrome X, hyperinsulinaemia, hyperglucagonaemia, cardiac ischaemia, and obesity. There is no absolute predictability, even in view of the high level of skill in the art.

(6) The amount of direction or guidance presented (by the inventor)

The specification in the present invention discloses that certain types of type 2 diabetes could be treated with the compound of formula (I) (see the above cited journal articles), but there is insufficient guidance in the specification for the role of the compound of formula (I) in all of the disease states listed in claims 14 and 15.

(7) The presence or absence of working examples

As noted in the previous section, the specification discloses the general role of the compound of formula (I) in treating certain types of type 2 diabetes. However, the specification has no working examples, such as in vivo or in vitro studies of the role the compound of formula (I) plays in insulin resistance, syndrome X, hyperinsulinaemia, hyperglucagonaemia, cardiac ischaemia, or obesity.

(8) The quantity of experimentation necessary (to make and/or use the invention)

Given the absence of direction or guidance (or working examples) in the specification for the role of the compound of formula (I), it would cause a skilled artisan an undue amount of experimentation to practice this invention to determine which patients with which diseases would benefit from which of the many claimed compounds within the scope of the invention with a reasonable expectation of success.

As stated earlier, the guidance provided in the specification about the role of the compound of formula (I) in the treatment of certain types of type 2 diabetes, along with the prior art is

sufficient to enable one skilled in the art to practice this invention without an undue amount of experimentation.

Objections

Claims 12 and 16 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form.

Telephone Inquiry

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Susannah Chung whose telephone number is (571) 272-6098. The examiner can normally be reached on M-F, 8am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph McKane can be reached on (571) 272-0699. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Susannah Chung
Patent Examiner, AU 1626

Date: 12/27/2005

KAMAL A. SAEED, PH.D.
PRIMARY EXAMINER